

Appendix B : Cost Estimates for the Fact Sheet mitigation measures

Material costs were developed using RS Means and estimates from selected home improvement stores. Labor costs were estimated based on a ratio to material cost of 1:1 that is used for WAP. In unique situations where machinery and crew labor is required a greater multiplier times materials was utilized.

FLOOD

Mitigation Measure	Description of Mitigation Measure	Estimated Cost		
		Materials	Labor	Total
101	Install gasketed well head cover with bolts	\$100-\$150	\$100-\$150	\$200-\$300
102	Clean gutters and storm drains and purchase and install gutter guard	\$35-\$50	\$70-\$100	\$100-\$150
103	Install gas safety cut-off valve to interior gas line	\$200-\$250	\$150-\$250	\$350-\$500
104	Anchor/elevate external fuel and Air Conditioning units	\$300-\$400	\$300-\$400	\$600-\$800
105	Anchor homes to foundation	\$80-\$100	\$160-\$200	\$240-\$300
106	Apply protective sealants to exterior and below-grade walls	Sealant \$700-\$800 for 240 sq. ft. Metal flood shields \$73 per sq. ft. Wood shields \$23 per sq. ft.	\$100-\$800	\$200-\$1,600
107	Buy and install septic backflow valve	\$100-\$300	\$300-\$900	\$400-\$1,200
108	Buy and install floating drain plug in first floor	\$30-\$40	\$60-\$80	\$90-\$120
109	Build interior walls around critical utilities	3-ft. high wall with a 35-ft. perimeter \$300-\$500; Submersible pump \$60-\$100	\$200-\$500	\$300-\$1,000
110	Move internal utilities/appliances to another floor or elevate in-place requiring an electrician and laborers for the heavy lifting	\$50-\$140	\$500-\$1,000	\$600-\$1,100

WIND

Mitigation Measure	Description of Mitigation Measure	Estimated Cost		
		Materials	Labor	Total
201	Trim, prune, and/or remove tree limbs and whole trees [Reduce potential for flying debris (i.e., anchor sheds, equipment, and miscellaneous materials)]	No materials needed-only tree professional service	\$300-\$500	\$300-\$500
202	Buy and install galvanized metal plating or strapping to secure home to foundation	\$5.00-\$7.00 for 50 ft. (\$250-\$300)	\$250-\$300	\$500-\$600
203	Uncover wall framing in order to screw or otherwise attach frame to foundation of regular or non-manufactured homes	\$125-\$175	\$250-\$350	\$375-\$525
204	Install 2x4s to brace end gables, galvanized fasteners to further secure the gables, and 16d nails or screws	\$30-\$40	\$45-\$60	\$75-\$100
205	Install slotted or power vents to replace older gable vents	\$150-\$200	\$150-\$200	\$300-\$400
206	Install hurricane straps in order to fasten the roof to the home walls	\$40-\$120	\$100-\$300	\$140-\$420
207	Install 16d nails to improve securing of sheathing to roof. High-strength adhesive AFG01	\$30-\$50	\$100-\$200	\$130-\$250
208	Add or replace door bolts and add or replace door hinges Apply impact resistant safety film to windows.	Door-\$10 to \$40; Adding safety coating to glass: \$5.00 per sq. ft.	Door-\$10-\$40; Safety Film-\$100-\$200	\$20-\$300
209	Create a safe area within your home to protect people	\$250-\$500	\$250-\$500	\$500-\$1,000
210	Install 2x4s to brace trusses of A frame homes	\$40-\$50	\$60-\$75	\$100-\$125

EARTHQUAKE

Mitigation Measure	Description of Mitigation Measure	Estimated Cost		
		Materials	Labor	Total
301	Install gas safety cut-off valve to interior gas line	\$200-\$250	\$150-\$250	\$350-\$500
302	Install bracing for a manufactured home	\$5.00-\$7.00 for 50 ft. (\$250-\$300)	\$250-\$300	\$500-\$600
303	Install metal plates and bolt to connect house sill plate to foundation	\$125-\$225	\$250-\$450	\$375-\$675
304	Brace cripple walls with rebar and grout for masonry units and extra courses of brick?	\$200-\$350	\$400-\$700	\$600-\$1,050
305	Install steel straps and angle bracing to go around chimneys and bolt the non free standing straps to the exterior walls	\$500-\$800	\$500-\$800	\$1,000-\$1,600
306	Install flexible piping for appliances and utilities. Buy and install angle bracing for overhead pipes	\$75-\$300	\$50-\$100	\$125-\$400
307	Install steel straps to strap the water heater to wall studs or concrete anchors for masonry walls.	\$80-\$100	\$80-\$100	\$160-\$200
308	Install lengths of heavy to medium strength chains and bolt them around propane type fuel tanks, or buy lightweight chains for counter top appliances or TVs, or buy steel straps to anchor wood stove flues and bolts to bolt wood stoves to the floor	\$20-\$50	\$20-\$50	\$40-\$100
309	Install bolts and brackets to bolt down bookcases and steel bands to keep shelf contents from sliding off	\$5-\$15	\$10-\$30	\$15-\$45
310	Improve or secure wall sheathing	\$125-\$175	\$250-\$350	\$375-\$525

FIRE

Mitigation Measure	Description of Mitigation Measure	Estimated Cost		
		Materials	Labor	Total
401	Hire two landscape professionals for removing vines from walls and creating a zone around the home free of underbrush and dead leaves	N/A	\$100-\$150	\$100-\$150
402	Relocate/Protect exterior, above-ground fuel tank(s) and reconnect the service lines	\$100-\$150	\$300-\$450	\$400-\$600
403	Maintain gutters, eaves, and clear roof of leaves and woody debris	N/A	\$70-\$100	\$70-\$100
404	Install non-flammable, or replace flammable, window and door screens with ½-inch or less screening mesh	\$25 for windows, \$75 for doors,	\$50-\$75	\$70-\$150
405	Replace existing roofing material with tile, metal, or slate roofing (cost are averages based upon roof area and are all inclusive)			\$4 per square foot for tile or metal roofing, \$7 per square foot for slate
406	Spigot and 10 ft. Copper piping Nozzle and 100 ft. Hose	\$40-\$50	\$80-\$120	\$120-\$170
407	Buy and install smoke and carbon monoxide detectors; to hard wire one in-place, an electrician is needed	\$5-\$40	\$25-\$50	\$30-\$90
408	Install 1 fire extinguisher	\$20-\$60	\$10-\$15	\$30-\$75
409	Install a chimney spark arrester, hire a tree professional to trim/cut tree limbs and branches to keep them a safe distance from the chimney opening	\$30-\$50	\$50-\$150	\$80-\$200
410	Clean chimney (only the service required)	N/A	\$60-\$65 brush cleaning, \$250 -\$500 mechanical cleaning	\$60-\$500